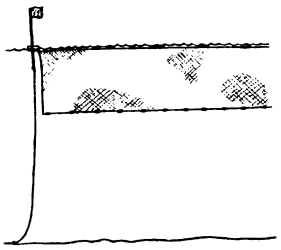
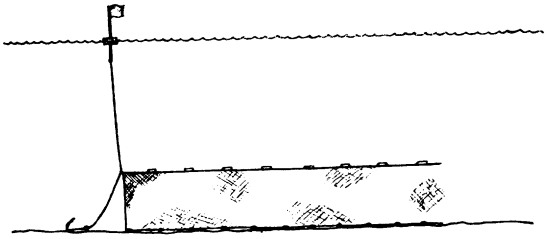
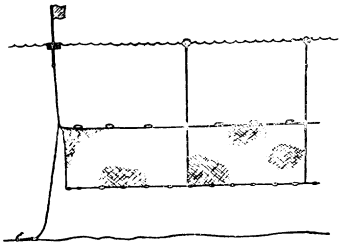
Report on the Discussions to Manage the Use of Lay Nets



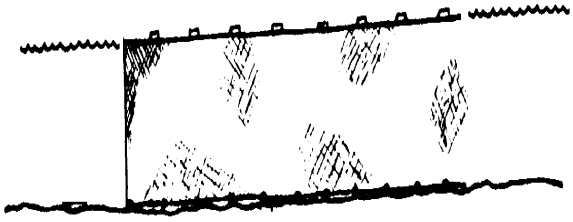
Floating lay net



Bottom lay net



Mid-water lay net



Full height lay net

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Summary of Recommendations

- We recommend that the regulations for lay nets should cover both moemoe and pa`ipa`i nets.
- We recommend that the question of how lobster nets should be regulated should not be answered at this time but should be delayed until the lobster regulations are reviewed
- We recommend that there should be different regulations for commercial and non-commercial lay nets.
- We recommend that these regulations should apply statewide and that area or island specific lay net regulations should not be established at this time.
- We recommend that the current 2-3/4 inches minimum mesh size requirement for lay nets be continued for commercial lay nets but that a new 3 inches minimum mesh size requirement for non-commercial lay nets be established beginning at 6PM on December 31, 2004. Trammel lay nets should have a new minimum mesh size of three-inch for one panel and five-inch for the second panel.
- We recommend that there should be established a new twelve-hour time limit for non-commercial users. The current four-hour limit for commercial users should be continued.
- We recommend that the current requirement for the two-hour inspection of lay nets be continued.
- We recommend that each person may only set one lay net once every 24-hours.
- We recommend that the use of trammel lay nets be allowed but only for commercial users with some additional mesh size restrictions.
- We recommend that the use of lay nets at night be allowed but that commercial lay net users must attend their nets at night.
- We recommend that the breaking of corals should continue to be prohibited.
- We recommend that non-commercial lay nets should be prohibited in depths greater than 25'; commercial lay nets should be prohibited in depths greater than 80'.
- We recommend that all lay nets should be registered with the Department.
- We recommend that all lay nets, while in the water, should be tagged.
- We recommend that the following limits should be established for lay nets: non-commercial users - maximum height 6'; maximum length limit 500'; commercial users - maximum height 12'; maximum length limit 1,200'
- We recommend that a 500' buffer between nets should be established.
- We recommend that all lay nets, while in the water, should have marker buoys.

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Introduction

The main purpose of this review was to improve management of the use of lay nets. We did not have a pre-conceived idea to restrict the use of lay nets. We asked ourselves how can lay nets best be managed to enhance their good points and reduce their bad points. With this in mind, we considered measures that were both more and less restrictive. We also recommended that some measures should not be changed, as there wasn't sufficient public support to change them or there wasn't scientific evidence that clearly showed the need to change such measures at this time.

The other purposes for this report is to document the multitude of issues involved and to compile them so that they may be looked at as a whole. Lastly, this document would make as clear as possible, what were the issues, what were the choices before us, and explain why certain recommendations were made.

During the course of this review, we developed 18 discussion points that we felt were going to be important to better manage the use of lay nets. These points would later be called discussion items. Of these 18 items, 10 would be more restrictive, 1 less restrictive, and 4 would keep things the way they are. The other 3 items were: should moemoe and pa`ipa`i nets be considered the same, should lobster nets be considered the same as lay nets, and should there be different regulations for commercial and non-commercial net users. We considered these three items to be neither more nor less restrictive.

We understand that there will be some people that will not agree with everything we recommend here. The surveys indicated that the public evenly supported and opposed several items. Choosing one or the other, as we have done, will undoubtedly create more discussion.

We ask the reader to consider these recommendations as a whole and not focus on any one recommendation. The relationships between recommendations may not be readily apparent. For example, the recommendation to increase the soak time to allow for the moemoe nets may be mitigated by the shorter net length/height requirements, the shallower depth limit, and larger mesh size.

These recommendations will be further developed into draft administrative rules of the Department of Land and Natural Resources. The public process to establish these rules will be open to public comment and will provide the opportunity for more meaningful discussion on all items. It is our hopes that through this open process, the State will be in a position to better manage the use of lay nets, that the public will make the best use of its limited marine resources, that the public will better understand why these rules are in place, and that the public will realize that their participation in these kinds of processes does make a difference and can be mutually beneficial.

Jo-Anne Kushima
Alton Miyasaka

Division of Aquatic Resources
Report on the Discussions to Mange the Use of Lay Nets

Background
During 1997 and probably before, a new type of lay net appeared along the Waianae coast of Oahu. The lay net was very long, over one mile in length, set with a mechanical drum, in 200+ feet of water. Being so long, the net could fish large areas at one time. The depth fished prevented divers from carefully removing the net without damaging the bottom or if the net was stuck on the bottom and could not be removed, pieces of net were left in the water. The net raised the concerns of long-time Waianae commercial fishermen so much that they asked the Department to look into how this kind of net could be better managed. A task force was formed to discuss what should be done. The Division of Aquatic Resources (DAR) provided administrative support for the task force.

Gill Net Task Force
The Gill Net Task Force (TF) was composed of a diverse group of individuals from the fishing community with a common interest in gill nets and the associated fishery. Some were net fishermen, some were recreational pole fishermen, one was a fishing supply store owner. The members came from Molokai, Maui, Kauai, Oahu, and Hawaii. The original group consisted of 17 individuals. During the course of the meetings, the TF composition changed. One member officially resigned, another member was not well and the TF voted to replace him. Four other members missed a number of meetings for various reasons.

While the TF's original focus was on the specific lay net being used at Waianae, they quickly realized that their discussions could be applied to lay nets in general. The TF's goal was to consider ways to better manage the use of lay nets in Hawaii. They held seven meetings in Honolulu during 1998 and 1999 to discuss issues associated with the lay net gear and fishery. On October 5, 1999, the TF held their last meeting and finalized a list of recommendations. The TF presented these recommendations to the Department of Land and Natural Resources, through the Division of Aquatic Resources, for it's consideration in future management actions relating to the use of lay nets.

What is a Lay Net?
For this discussion, a gill net is a generic term that applies to any net that captures fish by allowing the fish's head to pass through the net mesh but small enough to prevent the body from passing through. As the fish backs up, it gets caught when the net filaments slip under the gill plates and prevent the fish from escaping. The fish is then *gilled* within the net mesh. Fish or other marine life that are entangled, but not actually gilled, would also be included in this discussion. Entangled is when the fish or other marine life becomes caught in the net by its spines, fins, legs, or other body parts, besides the gill plate. Using this definition, throw nets, surround gill nets, and lay nets would all fall under the term gill nets.

A lay net is a certain type of gill net that differs from other gill nets by the way it is used. A lay net is a rectangular piece of net, with floats on one edge and weights on the opposite edge. The floats and weights keep the lay net suspended vertically while in the water. The net is "set" and left in place for several hours and later retrieved. The set begins when the net first touches the water and ends when the net is completely removed. The net is also known as a set net or *moemoe* net. There were discussions about whether the definition should also include the *pa`ipa`i* net, which is the same net in construction, but the fish are chased, rather than letting the fish passively swim into the net (see section on moemoe vs pa`ipa`i nets in the Discussion section below).

DLNR Internal Discussions

Following the TF's submittal of their final recommendations to the Department, the authors began internal discussions with DAR biologists. The biologists further refined these recommendations and decided on a list of what would eventually be called discussion items. These recommendations were then discussed with the Division of Conservation and Resources Enforcement (DOCARE), for their practical enforcement viewpoints, and with the Department of the Attorney General for some legal clarification. Finally, we included comments from the public received during the Statewide minimum size public meetings and hearings. Although the meetings and hearings were to discuss rule changes to increase the legal minimum sizes that certain fishes could be taken, some people provided comments on how to manage lay nets better.

Draft Discussion Items

The authors took the recommendations and comments from all these different groups and drafted a series of discussion items. Recognizing that the TF recommendations may not be representative of the interests of all lay net users and the public in general, the next step was to take these items to the larger community for broader discussions. Two surveys were developed - a general lay net survey and a specific survey on the discussion items. The general survey was to gather information about the use of lay nets to get a general idea of how common lay nets are in use today. The specific survey was to go through the list of items one by one and gather public comment about each item. The surveys were a way to gather more detailed comments, especially from those that either were not able to attend any of the meetings, and from those that attended but felt that they didn't want to say anything publicly.

Public Meetings

Ten informal public meetings were held on all the islands to gather public comment on the discussion items. Attendence at the public meetings were as follows: Molokai - 75+; Lanai - 0; Kona - 16; Waimea - 0; Hilo - 5; Maui - 37; Kauai - 20; Waianae, Oahu - 0; Kaneohe, Oahu - 12; Ala Moana, Oahu - 20.

The first public meeting was held on Molokai on the evening of September 10, 2002. We sent the public notice to the two local Molokai papers who both ran the notice, one on the front page, prior to the meeting. Over 75 persons attended, the

most persons to attend any public meeting to date on Molokai. Attendance was so great, that we did not bring enough surveys for those that attended. We later sent copies to our Molokai biologist and he forwarded surveys to those that wanted them. Most persons at the meeting expressed a desire to develop regulations specific for Molokai and did not support DAR' proposals.

After the first meeting in Molokai, the specific survey form (Specific Lay Net Survey #1) was modified to provide greater justification for the proposals and to ask the public's thoughts about the proposals in a slightly different way. The proposals were presented more as discussion items rather than proposals. There was a feeling that the public felt that DAR had already decided what the proposals would be, so we wanted to present the items more informally for further discussion. This modified survey became known as the Specific Lay Net Survey #2. The last public meeting was held at McCoy Pavilion, Honolulu on October 8, 2002.

Following the public meetings, it was noticed that only a few commercial lay net fishers had attended. In order to solicit greater response from them, a new commercial net user survey form was developed and mailed directly to certain commercial marine licensees. We sent 79 surveys to those persons that had reported catching marine life while using either nets in general or gill nets. The surveys were sent on October 29, 2002 with a response deadline of November 20, 2002.

Surveys

There were four different surveys developed to gather comments from the public. They were 1) the General Lay Net Survey, 2) the Specific Lay Net Survey #1, 3) the Specific Lay Net Survey #2, and 4) the Commercial Lay Net Survey. The General Lay Net Survey was provided to all persons at the public meetings and on the DLNR website. The Specific survey #1 was only provided at the Molokai and Lanai public meetings. The Specific survey #2 was provided at the remaining public meetings and on the DLNR website. The Commercial survey was only mailed to certain commercial marine licensees.

We caution the reader against reading too much into the survey results. There may be a number of biases in either how the question was worded (what did the question ask?) or who answered the survey. For example, one potential bias may be that those persons that attended the meetings tended to be older (30+ years), presumably without young children to care for, or who felt strongly enough to both attend a meeting and to fill out a survey. Such biases may change the answer and affect the survey results.

A quick review of the survey results indicated that the majority of public responses, not including the commercial survey, were from either non-commercial lay net users or persons who had never used lay nets. These groups may have a very different viewpoint from commercial net users.

These results summarize all survey responses.

- Most respondents (99%) were current residents of Hawaii
- Most respondents (91%) knew about the Hawaii Fishing Regulations booklet
- Most (78%) had read the booklet within the past year
- 61% felt it was very important to regulate lay nets
- For the public survey, almost half (47%) were current net users, 29% were former net users, 24% had never used nets
- For the public survey, of those that had used nets most (73%) considered themselves as non-commercial net users
- When the commercial survey is added to the public survey, 58% of respondents were non-commercial net users, 28% were commercial, 14% were both
- Of those who are either using or had used lay nets, 72% had over ten years experience
- If fish were more plentiful, 42% said they would use the same amount of nets
- 61% of respondents felt that lay nets have a big impact on the inshore reefs
- Half (49%) felt that lay nets are more harmful than other kinds of nets
- 57% of commercial users thought there are more nets in use today compared to ten years ago
- 64% thought it was riskier to use lay nets at night compared to during the day
- Exactly half (50%) thought lay nets should be banned at night
- More than half (58%) thought that lay nets should not be banned (no commercial fisher was asked this question)
- 45% felt that lay nets should be regulated more, 42% thought current regulations were good enough, 13% felt there should be less regulations
- 66% of respondents were from Oahu (32%) and Maui (34%)
- 82% thought there were less fish today compared to ten years ago
- 83% felt that the State could manage lay nets better
- 45 (yes)/55% (no) of respondents thought that moemoe and paipai nets should be managed the same
- 87% thought there should be minimum sizes of fishes
- 91% thought that lay nets should have a minimum mesh size
- 59% of the public supported the current minimum mesh size
- 90% of commercial fishermen supported the current mesh size
- About half (52%) thought that the two hour inspection should not be changed; 83% of commercial fishermen thought the inspection requirement should not be changed
- 94% of respondents thought there should be a time limit on lay nets
- A little over half (53%) thought that the 4-hour time limit should be changed
- 70% of commercial fishermen agreed that each person should only use one net every 24 hours
- 75% felt that lay nets should have size limits (height/length); more than half (57%) of commercial fishers thought there should not be size limits
- 74% of commercial fishers thought that there should be a 100' buffer between nets
- 78% of commercial fishers thought that the maximum length should apply no matter how many fishers are using the net
- 69% of the public felt that trammel lay nets should not be allowed; 46% of

commercial fishermen did not want trammel nets allowed
- 73% of the public felt that there should be a depth limit for lay nets; only 31% of commercial fishermen felt that there should be a depth limit
- 81% of respondents did not like the 80' depth limit
- Half (54%) of commercial fishers supported an attendance requirement
- Half (52%) of commercial fishers supported registration & tagging of lay nets
- 89% of the public and 79% of commercial fishers supported requiring marker buoys; most objections were because of losing their secret fishing grounds, stolen catch, and stolen nets

Timeline of Events

1998-99	Gill Net Task Force (GNTF) Meetings
2000	GNTF submits final recommendations to DAR
2000	DAR prepares draft rules based on GNTF recommendations for internal discussions
1/11/01	Internal DAR discussions on GNTF recommendations via videoconference
5-7/01	Meetings with DOCARE to discuss GNTF recommendations
5/8	Hawaii, Mauna Kea State Park
6/6	Maui, videoconference
7/3	Oahu,Waimanu Baseyard
7/25	Kauai, videoconference
11/01	Meetings with DOCARE to discuss draft rules
11/15/01	Maui & Hawaii (videoconference)
11/16/01	Kauai (videoconference) & Oahu (meeting)
11/20/01	DAR videoconference to discuss draft rules
2001	DAR discusses GNTF recommendations with Department of the Attorney General
2002	DAR develops draft discussion items from GNTF recommendations, DAR, and DOCARE comments
8/22/02	DAR-Oahu internal meeting prior to public meetings
8/28/02	DAR-Statewide internal videoconference prior to public meetings
8/02	DAR develops survey forms to solicit public comment
9/10/02	Statewide public meetings begin on Molokai (Mitchell Pauole Center)
9/12	Lanai public meeting (Lanai Library)
9/17	Kona public meeting (Kealakehe High School Cafeteria)

9/18	Waimea public meeting (Waimea Middle School Cafeteria)
9/19	Hilo public meeting (Hilo High School Cafeteria)
9/24	Maui public meeting (Lihikai Elementary School Cafeteria)
9/26	Kauai public meeting (Wilcox Elementary School Cafeteria)
10/1	Waianae public meeting (Waianae Public Library)
10/3	Kaneohe public meeting (Ben Parker Elementary School Cafeteria)
10/8	Honolulu public meeting (McCoy Pavilion)
10/29/02	DAR sends survey to commercial fishers
11/20/02	DAR survey deadline
12/02	DAR compiles survey responses
1/03-7/03	Authors prepare Lay Net Management Report

Discussion

During the 1993 Legislative Session, the Department submitted a report entitled "An Assessment of Available Information on the Impact of Gillnetting in State Waters and Proposed Measures to Regulate the Use of Gillnets" in response to House Concurrent Resolution No. 421, 1992 Session Laws of Hawaii. In that report, the Department recommended several major changes to the regulations for gill nets. The current regulations, such as time limits, inspections, and mesh size, were established at that time, largely based on this report.

These changes brought to light a number of difficulties for DOCARE, charged with enforcing these regulations. The difficulties arose mainly from a lack of clear definitions and specific language that describes what is and isn't a violation. One of the main reasons for this review is to correct some of these ambiguities.

Moemoe vs Pa`ipa`i Nets

A moemoe net is one of the traditional ways that non-commercial fishers use lay nets. The name *moemoe* net, comes from the Hawaiian word *moe* meaning "to sleep". The method involved setting the net, going home to sleep, and returning later to retrieve the net. The moemoe net is considered a passive gear and the pa`ipa`i net is an active gear. A passive gear is one where the user does not work the net and leaves the net in one place waiting for the fish to swim into the net. An active gear is one where the user either moves the net to the fish or chases the fish into the net. The name pa`ipa`i comes from the Hawaiian word *pa`i* meaning "to slap" because of the slapping of the water to chase the fish into the net. In actuality, moemoe and pa`ipa`i describe the method rather than the gear. Because the main difference between the moemoe and pa`ipa`i nets is the way the nets are used, the same net could be used by both methods. The pa`ipa`i net is not normally left in the water for any extended time, so the two-hour inspection and four-hour time limit would not be reached.

This dual purpose has created a potential legal problem. The law currently

requires that stationary monofilament gill nets have a minimum mesh size of 2 3/4 inches. While it is clear that the moemoe net is a stationary monofilament gill net, it is unclear if the pa`ipa`i net is also a stationary monofilament gill net. Because the pa`ipa`i net is worked, is it stationary? How long does the net have to be left before it becomes stationary? One of the survey questions we asked was whether the two nets should be regulated the same. The question seemed difficult to answer because the results were roughly even, 45% yes and 55% no. Because the nets are essentially the same, only the way they are used differs, it would seem better to regulate both basically the same.

However, regulating both nets the same would mean that some requirements do not really apply to both. For example, the two hour inspections and four hour time limit don't normally apply to pa`ipa`i nets because they are not left in the water for that long a time. Since the nets are not in the water that long, the inspection and time limits should never be reached. Other regulations, like the length and height limits, could apply to both nets.

We recommend that the regulations for lay nets should cover both moemoe and pa`ipa`i nets.

Lobster Nets

Lobster nets are constructed differently than lay nets. A lobster net is usually a short net (about 4' tall), with larger mesh (about 6"), and orange, thick, twine. The lobster net is intended to catch lobsters walking on the reef flats at night so the net is usually set in the early evening and retrieved in the early morning. More recently, the lobster nets are being made of thin, monofilament nylon because it's cheaper. In the previous case, the gear (moemoe and pa`ipa`i nets) are the same, but the methods are different. In this case, the gear (lobster and lay nets) are different, but the methods are the same.

There are a few concerns with lobster nets. In theory, lobster nets could also catch larger fishes and should be regulated the same as lay nets. Some net fishers consider this to be a very rare event. The introduction of the monofilament line probably increases the chance of catching fish. In theory, lobster nets could catch turtles because the mesh is so large and the netting is so thick. Some net fishers again, consider this to be an even rarer event. Some believe that the lobster resources are so heavily fished that the use of nets are too efficient and should not be allowed. Others believe that the elderly prefer to use lobster nets because they would not be able to catch lobsters any other way. We asked the commercial net users if they thought that the lay net regulations should apply to lobster nets. Most (72%) felt that lobster nets should be regulated differently from lay nets.

The Division is considering a review of the lobster regulations to improve the management of this resource. During this review, the question of whether to allow the use of nets to take lobsters may best be answered when other possible regulations are considered. Should nets be banned in this review, whatever regulations proposed here might be contradictory and confusing. Because of this,

we recommend that the question of whether lobster nets should be regulated the same as lay nets should not be answered at this time. A review of the current lobster regulations should be undertaken to improve their management.

Commercial vs Non-commercial Net Users

One of the major management questions to be asked regarding the use of lay nets is should commercial and non-commercial users be regulated the same or differently. The answer should consider a matter of fairness. If one believes that generally, full-time, commercial users would need more resources than non-commercial users, over the long term, then it would seem fair to allocate resources based on each groups needs. While non-commercial users may need amounts that sometimes exceed the average commercial person's catch, such times would only be during special occasions and the normal daily needs would be for immediate family consumption only. For commercial users, the more resources that can be caught and sold, the more money can be made. If one believes that need should not be considered or that each persons needs are equally valid, then it would seem fair to treat all persons the same, equally, regardless of the level of need. We believe that fairness should be based on a person's needs.

Another consideration is how the regulations would affect the users. Using a different set of regulations for commercial and non-commercial users would increase the complexity of the rules for both the public and DOCARE. Keeping it simple by using the same regulations for commercial and non-commercial users would make the rules more understandable. There would seem to be a need to balance fairness and simplicity. In this case, we believe that while simplicity is desirable, fairness should over-ride, because a reasonable amount of simplicity can be maintained.

The commercial survey asked "Do you agree or disagree that there should be different regulations for commercial and non-commercial lay net users?" Of those that responded, most (66%) felt that there should be different regulations.

We recommend that there should be different regulations for commercial and non-commercial lay net users.

Area Specific Lay Net Regulations

During a number of the public meetings, some of the persons attending asked about making lay net regulations that would apply only to their island or only their side of the island. These regulations would be custom made for their area and would not necessarily apply anywhere else in the State. As in the previous example, the balance of fairness and simplicity should be considered. It would seem that providing custom made regulations for each area might be considered fairer, especially by the local area users. While this may seem like an attractive way to manage resources locally, the bigger, Statewide legal complexities would be multiplied greatly.

In effect, there would be many managed areas Statewide, some large, some

small, some with areas within areas, some with overlapping areas, all with different regulations. When one considers that this only involves lay nets, and the same could be applied to spearing, throw netting, pole-and-line, and kumu, lobsters, seals, and turtles, one can begin to see the potential complexity. The manpower and time needed to develop, establish, and maintain these areas would be substantial. Under this scenario, we believe that with so many different area regulations, simplicity would not be possible and the need for simplicity should over-ride fairness.

We recommend that area specific lay net regulations should not be established at this time.

Minimum Mesh Size

Mesh size regulations are intended to control size at first capture. In theory, the larger the mesh size, the larger the fish that will be captured. Such regulations are most effective when the target species (the species intended for capture) is known and only that one species will be captured. A specific mesh size will only capture fish within a certain size range. Fish too small will not be caught because they will pass through the mesh while fish too large will not be caught as they will not fit in the mesh and not be gilled. Therefore, only fish within a certain size range will be captured and the gear is non-selective for species but selective for size. Within the context of the lay net method, any number of different species may be captured and some may be juveniles and some may be adults, even though they will all be of the same general size. While 91% of survey respondents thought there should be some minimum mesh size for lay nets, the surveys said that 59% of the public and 90% of commercial fishers supported the current minimum mesh size of 2-3/4 inches.

A three-inch minimum mesh size was recommended in the 1993 Legislative Report mentioned earlier. This minimum mesh size would seem reasonable for non-commercial lay nets as their catch should be directed towards larger fish. While the number of fish caught with the larger mesh may be less, the non-commercial user does not need large numbers of fish. The new minimum mesh would require non-commercial lay net users to buy new nets. To compensate for this, there should be a notice period where non-commercial lay nets currently in use can continued to be used to recover their costs. It is recommended that this notice period should last until December 31, 2004, after which time, the new minimum mesh size would be in effect. The time of 6:00 PM is chosen instead of mid-night to reduce the need for enforcement at that late hour.

Trammel nets are essentially two or more lay nets used together to form two layers of mesh (see discussion below on Trammel nets). During the meetings, a recommendation was made to establish minimum mesh sizes for trammel nets to prevent them from catching undersized fish. The recommendation was to make one panel a minimum of three-inches stretched mesh and the second panel five-inches. Since trammel nets are used to catch larger fishes, the larger minimum mesh size did not seem to be an unreasonable burden.

We recommend that the current 2-3/4 inches minimum mesh size requirement for lay nets be continued for commercial lay nets. A new minimum mesh size of three-inches should be established for non-commercial lay nets to begin at 6PM on December 31, 2004. We also recommend that the mesh of trammel nets have a minimum of three-inches stretched mesh for one panel and five-inches for the second.

Four-hour Maximum Soak Time

How long a net is left in the water will be referred to as *soak time*. To prevent nets from being left in the water indefinitely, a soak time limit of twelve hours was established in 1977. Recreational and subsistence fishers would traditionally leave their lay nets overnight, setting them at sundown and retrieving them at sunrise. The twelve-hour limit would allow the continuance of this practice and prevent indefinite use of the lay nets. The 1993 Legislative report noted that discussions with fishers, biologists and enforcement officers suggested that the soak time should be reduced to four hours but that a specific time limit should be discussed further at Statewide public meetings. Despite this recommendation, the twelve-hour time limit was changed to four hours.

During the Statewide public meetings held in September-October 2002, recreational and subsistence net fishers voiced their opposition to the four hour time limit. They seemed to feel that the regulation eliminated their normal net fishing method. The four hour time limit also requires them to retrieve the nets during the night, which increases the risk to their safety. This is discussed further under the proposal to ban the use of lay nets at night.

We expect that extending the current time limit for recreational net users from four hours to twenty-four hours would not be supported by those persons who are opposed to the use of nets and those that would like the use of nets reduced. It may also make enforcement of the time limit more difficult since its for a longer time. Extending the limit would allow the traditional practice of the moemoe nets and allow users to retrieve the nets during the daylight.

The surveys said that the great majority (94%) thought that lay nets should have some soak time limit and about half (53%) of the respondents thought the four hour soak limit should be changed. The majority (68%) of commercial users thought that the soak limit should remain as is. One alternative is to make a twelve-hour time limit for non-commercial and a four hour limit for commercial users. A shorter length limit for non-commercial lay net users would help to reduce the negative impacts from the increased soak time. Commercial net users, in general, do not usually leave their nets overnight and, as expected, support the current four-hour limit. Another alternative is to keep the current four-hour time limit for both.

We recommend that there should be established a twelve hour time limit for non-commercial users and a four-hour limit for commercial users.

Two-hour Inspection
The reasons stated in the Legislative report for the inspection is to reduce the waste of fish that are left on the net too long and having to be thrown away because of spoilage, eaten by predators, or otherwise not marketable. There was also the concern that turtles would become entangled. Two hours was seen as a reasonable time limit to prevent fish from spoiling. During the meetings, non-commercial users seemed to support the two-hour inspection. There was a discussion on reducing the inspection to half an hour or every hour but the net users argued that inspecting the net too often chases the fish away, "disturbs" the net, and prevents the net from catching fish. The non-commercial users, while asking for the soak time extension, still supported inspections every two hours.

The surveys said that about half (52%) of the public and 83% of commercial users thought the inspections should remain as is. We recommend that the current requirement for the two-hour inspection of lay nets be continued.

Limit One Set Every 24 Hours Per Person
The Legislative report stated that other than to prevent nets from accumulating debris and blocking fish passage indefinitely, the 24-hour limit would reduce the amount of fishing effort Statewide. The report also stated that the decline in inshore resources showed that this limit was needed. Another benefit from this provision would be that DOCARE could more easily enforce the soak time limit.

The current language was an area of uncertainty for DOCARE. It could have been interpreted to mean that each person could use each net for four hours only once every 24 hours *in exactly the same place*. Currently, the owner could claim that the net was removed at four hours and set again *in a slightly different place or angle*, and not be in violation of the time limit. This requires that the officer watch the net for the whole four hours to be sure that the net was not retrieved and reset in the same place. A provision that prevents the net from being reused would eliminate the need to watch the net for four hours or to prove that the net was not reset in a slightly different place or angle. An officer seeing a net at 10am and again at 6pm, in the same place, could assume a violation, since the net could not be used again. Discussions were both for and against this proposal during the meetings. Those opposed to this provision did not seem to think that it could be enforced. The commercial survey directly asked this question and 70% of respondents supported this provision.

This provision, by itself, would not prevent a net user from using a second net and setting the second net in exactly the same place as the first net. In this way, a net user could alternate nets and effectively have a net in the same place indefinitely, thereby negating the benefits of the four-hour and 24-hour time limits. Another provision would be needed to address this issue.

One way to address this issue is to be able to identify either each net or each owner. If each net had a unique number, then a net with number 1 seen at 10 am

and again seen at 6 pm would clearly be a violation since the same net could not be in the same place for longer than four hours. To address the possibility of alternating nets, there are two options. The first option is to have each net with a different number and the owner could not use any of their other nets within the 24-hour limit. This would require that the DOCARE officer would have to have each owners complete list of net numbers to identify whose net it was. The second option is to assign each owner one number for all of their nets and any net with the same number would be in violation if it was seen in the water within 24-hours, even if there were different nets, set in different places. This would seem the better option.

When the net was first placed in the water would be the start time. This same start time would be applied to the two-hour inspection, four-hour soak time limit and the 24-hour limit. Therefore, in the case of the four-hour time limit, the net may not be placed back into the water for at least twenty-hours (assuming the net was in the water for the full 4-hours) from the time the net was removed from the water. A net placed in the water at 6:00 AM must be inspected by 8:00 AM, removed from the water by 10:00 AM (assuming a 4-hour time limit), and may not be placed in the water again until 6:00 AM the following day.

We recommend that each person should only set one lay net once every 24-hours.

Trammel or Skirted Lay Nets

Trammel or skirted lay nets are lay nets with multiple, overlapping (two or more layers) panels of netting. We are told that trammel lay nets are not very common because they tend to collect debris faster (requires more cleaning), are more visible to the fish, and are more expensive. They are used because these nets 1) are able to capture larger fishes, such as kala or unicorn surgeon fish, that would normally break through the thin netting of single panel nets and 2) can catch more fish (fish of different sizes can be caught).

The surveys said that 69% of the public but only 46% of the commercial users felt that trammel lay nets should not be allowed. The results suggest that trammel lay nets are a specialized gear type only used by a relatively small number of fishers, most of which seem to be commercial, with very few recreational users. This, in turn, would suggest that should DAR wish to limit the number of users of trammel nets, that reserving the nets to commercial users may be an option.

There was a suggestion at one of the meetings that should these nets be allowed, that they should have special provisions. One of these is to require that the minimum mesh size should be three inches with the second layer no less than five inches. Since the target species are larger in size, the larger mesh should not be a problem for the net fisher. There is a concern that too large mesh, such as six and eight inches, might begin to entangle turtles more readily.

We recommend that the use of trammel lay nets should be allowed but for commercial users only. A minimum mesh size of three inches for the first panel

and five inches for the second panel should be established. We also recommend that no more than two panels may be used.

Use of Lay Nets at Night

The use of lay nets at night could create many problems, such as divers swimming into nets, boats running over nets, and turtles entangling in nets. Even for lay net users there is an incentive to neither check the net every two hours nor to remove the net after four hours during the night. This may result in fish spoiling if left on the net too long.

The surveys said that 64% of the public and 46% of commercial users felt that it was riskier to use lay nets at night compared to the day. This seems to support the belief that it may be slightly more dangerous to use lay nets at night. When asked if lay nets should be banned at night, the public responses were half for and half against. The commercial users were mostly (76%) in support for allowing lay nets to be used at night.

If lay nets are to be used at night, it would seem reasonable to manage their use to limit their negative effects. One option is to require that commercial net users continuously attend their nets at night. Since commercial nets users may use their nets further offshore and their nets are longer, attending their nets could reduce the problems of swimmers, boats, and turtles running into them. A similar attendance requirement for non-commercial net users using the moemoe net fishing method would probably not be practical.

We recommend that the use of lay nets at night should be allowed but that commercial lay net users must attend their nets at night.

Breaking Coral While Retrieving Net

The breaking of coral is prohibited by law primarily to prevent the destruction of live corals and to a lesser degree, dead corals. The breaking of coral is potentially a greater problem than the removal of fish because of the long term impact from the destruction of habitat. It takes a long time for corals to regrow once they are broken off their base. In the mean time, the fish's shelter is lost and they are vulnerable to predators. This concern was brought up for discussion due to the connection between the use of lay nets and the potential for breaking of corals during the net retrieval process. Because the breaking of corals is already prohibited by law, this provision would help make it clearer that such practices should be avoided.

The Gill Net Task Force discussed this item and recommended that the user be required to have a diver inspect the net and untangle the net from any coral or rock to prevent damage to the bottom. The diver requirement was a potential liability issue for the State and we decided to simply state that coral may not be broken rather than to indirectly prevent damage by requiring a diver. The liability issue came from a potential legal action that could result should a diver be hurt while trying to comply with this provision and placing responsibility for damages

as a result of this requirement on the State.

We recommend that the breaking of corals should continue to be prohibited.

Maximum Depth Limits
The Gill Net Task Force discussed this issue but did not decide on a recommended depth limit. The surveys said that 73% of the public felt that there should be a depth limit but only 31% of commercial users supported this proposal. Most (81%) respondents that supported some depth limit did not support the proposed 80 foot depth limit but preferred some other depth. In the commercial survey, of those that thought that there should be some depth limit, most (69%) supported the proposed 80'. Of those that suggested other depths, all were shallower than 80'.

One suggestion received during the meetings was to have a range of depths for lay nets, such as between 20-80'. Another was to prohibit lay nets within half the distance between the shore and the surf break. As expected, the suggested depth limits were wide spread over the whole range from 0-120' with one suggestion for an unlimited depth restriction (no depth limit).

Based on discussions during the meetings, most non-commercial net users set their nets in relatively shallow water, chest depth or less, usually from shore without a boat. Most commercial net users, on the other hand, have boats and set their nets in deeper waters.

One negative effect of a shallow depth limit will be to concentrate the use of lay nets in areas closer to shore where there may be more potential conflicts with the shoreline pole and line fishers. There may also be a greater chance of catching the juvenile fishes, which tend to live in the shallows. The minimum mesh size should help to prevent gilling of some juvenile species. On the other hand, moving the nets further offshore with a deep depth limit may increase conflicts with boaters and increase take of the larger, breeding populations of fish that live in the deep. Given these two choices, we would prefer that the nets be confined to the shallow rather than deep waters. The recommendation of 25' for non-commercial users may limit the use of those lay nets to areas far enough offshore to reduce their potential conflicts with shoreline pole fishers but be near enough inshore to reduce their potential conflicts with boaters and fish breeding populations in the outer reef areas.

We recommend that non-commercial lay nets be prohibited in depths greater than 25'. Commercial lay nets should be prohibited in depths greater than 80'.

Lay Net Registration
DOCARE has suggested that the single most important provision that would help the officers would be the registration and tagging of lay nets. The purpose of the registration would be to identify the net owner. DOCARE would know who to contact, should they want to question the net's owner. Public comments received during the meetings seemed to support this provision. Half (52%) of commercial

users supported this provision. The main objections to this provision were because of the inconvenience to register and tag and the concern about the potential cost.

To make registration easier, it could be done through a form on a website, by phone, or the person coming into the office. While the phone and in person would only be during normal working hours, registration through the website could be at any time. Instant registration, even over the website, would probably be difficult to do at the present time. With a single registration number, a lay net user would only have to register once, and they would keep that number as long as needed.

We recommend that all lay nets be registered with the Department.

Lay Net Tags

In combination with the net registration, net tags would enable DOCARE officers to know whose net they were dealing with, without requiring the net owner to be there in person. Any lay net in the water found without a tag could be immediately removed.

One of the suggestions received during the meetings was to assign one number to each lay net owner for all of their lay nets. The number could be written, engraved, or otherwise placed on the corners of the net at minimal cost to the owner. This would mean that "official," Department supplied, tags would not be necessary. The drawback to this would be that the owner could either unintentionally use an incorrect number or intentionally use a false number to avoid responsibility for the net. The major benefit for not requiring an "official" tag would be the low or no cost for such a tagging system. This would address the public's cost concerns expressed during the meetings.

Comments received during the meetings seemed to indicate good public support for this provision. The surveys said that half (52%) of commercial users supported registration and tagging, however, 59% would support it, if it were free. As with the registration, the main objection to this provision seemed to be the inconvenience to tag. As expected, the objections came primarily from the non-commercial net users.

We recommend that tags be required on all lay nets that are in the water.

There was some discussion about requiring the registration and tagging of all nets, not just lay nets. While this would be desirable, we believe that the requirements to implement such a system would not be feasible at this time due to limited budget and manpower. There is the possibility that the Division could take incremental steps to include all nets.

Attendance Requirement

Since the purpose for registration and tagging is to identify the net owner, an alternative would be to require that the net user attend their net. Should a DOCARE officer encounter a problem with the net, the user would be available to

discuss the problem. Both registration/tagging and attendance would allow identification of the net but the attendance would allow the officer immediate acces to the net user.

Comments received during the meetings seemed to indicate an even mixture of support and opposition for this provision from the public. The surveys said that a little over half (54%) of commercial users supported attendance. This seems to be because most commercial net users normally attend their nets to prevent loss of equipment, catch, or both. As with the registration, the main objection to this provision seemed to be the inconvenience to attend the net. As expected, the objections came primarily from the non-commercial net users, whose general practice was to leave their nets unattended.

The Gill Net Task Force discussed an attendance requirement but was unable to agree on two main points 1) whether this should be required, and 2) to clearly define what attendance meant. Because of this, no recommendation was presented to the Department on an attendance requirement. DOCARE especially wanted a clear definition for attendance and suggested that the person had to be within 100 feet of the net for it to be considered attended. Some persons thought this was too restrictive and made their own suggestions.

While the use of lay nets at night should be allowed (see discussion on use of lay nets at night above), there are still some concerns. An attendance requirement for commercial lay net users at night would address most of these concerns. Attendance is not required for non-commercial users because the nets are smaller and the normal *moemoe* practice is to leave the net unattended. We suggest that persons always attend their nets to keep watch over them in case of any problems.

We recommend that commercial lay net users, while using their nets at night, should be required to attend their nets. For the net to be considered attended, at least one of the net's owner/user must be within 100 feet of the net. Non-commercial lay net users are not required to attend their nets.

Maximum Height and Length Limits

The Task Force discussed and recommended the following limits: commercial net users maximum height 12' and maximum length 1200'; non-commercial net users maximum height 12' and maximum length 500'. These limits were based primarily on the generic sizes the manufacturer makes the net pieces. Each piece of net is usually between 100-125' in length. A non-commercial net would be 5 pieces and a commercial net would be 10 pieces. The Task Force members felt that there should be a difference in size limits depending on if the user was commercial or non-commercial. The thinking seemed to be that non-commercial users should have a shorter length limit because they generally did not need as much fish as commercial users. We presented these sizes to the public for further discussion.

The public survey said that 75% of respondents thought that lay nets should have some height and length limits. On the other hand, most (57%) commercial net users thought that there should not be any height or length limits.

During the meetings, a number of persons suggested that many non-commercial users commonly use a six-foot high lay net. It seems that this height is standard mainly for persons working the nets from shore, without a boat, where they are in depths at or below the person's height. Because most non-commercial users seem to use six-foot high nets, we are recommending that the maximum height limit for non-commercial user be six-feet. While most commercial users thought there should not be any height limit, we believe that there should be a height limit and are recommending that the maximum height limit be twelve-feet.

Commercial users, on the other hand, tend to use boats when setting their nets, and use a variety of net heights and lengths, depending on the species being targeted and the ocean conditions. One question was, "Does the length limit apply to only one person or many persons?" For example, if the net length limit was 1200' *per person*, then two or more persons could join their nets to make a net with an unlimited length, depending on the number of persons working the net. To prevent this, we propose that there should be a maximum net length, with some provision based on the number of persons using the net. As an option, a net could be no more than 1200' long, no matter how many persons are using the net. Two or more persons could still only use up to 1200' of lay net. As another option, one person could use no more than 1200' of net and two or more persons could use no more than 2400' of net. The different length limits are partly because of the belief that one person can only effectively manage a certain length of net, more net would become unmanageable. Two or more persons, in theory, could effectively work a longer piece of net than one person.

In order for two or more pieces of nets to be considered as one net, they would have to be physically joined together, with the space between nets no greater than the size of the mesh. Pieces not joined would be considered as separate nets and subject to the minimum distance between nets (see Minimum Distance Between Nets below).

Discussions with net users indicated that one-person net users were very rare with the majority of nets being used by two or more persons. Therefore, one person regulations would be unnecessary.

We recommend that the following limits be established for lay nets:
non-commercial users - maximum height 6'; maximum length limit 500'
regardless of the number of persons using the net
commercial users - maximum height 12'; maximum length limit 1,200'
regardless of the number of persons using the net

Minimum Distance Between Nets
If a maximum lay net length limit was established, there could be a problem if

two or more persons join multiple nets together to make a net that is longer than the maximum length limit. To prevent people from joining two or more nets together that would exceed the maximum length limit, we asked the public if they supported the idea that nets should not be used within 100 feet of another net. This buffer area would not apply if the nets were all your own nets or you were using your nets with a partner or partners. To qualify as one net, all nets would have to be physically joined. For example, if you are a non-commercial lay net user, your maximum net length would be 500 feet. You may use any number of net pieces, in any configuration, but no more than 500 feet of net, all your nets must be joined.

One person using a number of net pieces, not joined, would not be allowed because of the one set per 24-hour limit. Two persons using a number of net pieces, not joined, would be allowed provided the pieces are not within 100' of each other.

Some persons felt this requirement as unnecessary. They felt that common courtesy would dictate that people should not set their net too close to another person's net. They also felt that common sense would tell you that if another person's net is already there, setting another net in the same area should result in lower potential catches, unless the net already set is overrun with fish. However, the main reason for this requirement is to assist the enforcement of a maximum length limit. Indirectly, it may also address the courtesy issue.

Most (74%) of commercial users thought that there should be a 100' buffer between nets. Many persons at the meetings preferred a different distance than what we proposed. One suggestion was that the minimum distance should be the same as the maximum length limit. The net length could serve as a good reference for the distance between nets. For example, if the maximum length was 500' and two nets were closer than the length of the nets, then it may be advisable to measure the distance. If the distance was more than the length of one net, then there would be no violation. It would seem that one distance should be established to eliminate a potential problem when a commercial and a non-commercial net are next to each other (which distance do you use?).

While the discussions on a distance between nets as proposed was 100', we are recommending that the distance be increased to 500'. We believe that a larger distance between nets would reduce the number of nets in a particular area, reduce conflicts between net users, and would be easier to judge the distance between nets in the field.

We recommend that a 500' buffer be established for all lay net users to match the maximum length limit for non-commercial net users.

Marker Buoys

DOCARE asked us to consider making a requirement to have marker buoys on lay nets to enable their officers to locate a lay net from a distance. It could also enable boaters to see a net, avoid running over them, and prevent damaging both the boat and the net.

The surveys said that 86% of the public and 79% of commercial users supported requiring marker buoys on lay nets. Those opposed to this idea stated that their main concerns were that others would find their “secret” spots, their catch would be stolen, and their nets would be stolen. They also believed that it was unlikely that boats would run over their nets because the nets are set in waters so shallow that the boats would risk running on the reef, rather than their nets.

There was a discussion on whether or not to require numbered buoys. The number would be the same number as the net. The reason for this was in those cases where the net was below the surface, such as on a mid-water or bottom lay net. The tag or number would not be easily visible from the surface and the officer would have to bring the net to the surface to read the number.

Based on the above discussion, there appears to be support for requiring marker buoys. We recommend that marker buoys be required for all lay nets in the water and that the buoys be numbered.

Next Steps

Following the completion of this report, draft rules will be developed. These draft rules and report will be discussed among the DAR & DOCARE staff statewide. The documents will then be posted on DAR’s website at www.state.hi.us/dlnr/dar for public review and comment. The formal rule making process to legally regulate lay nets will begin with approval from the Board of Land and Natural Resources to hold public hearings Statewide. The process will end when the rules become effective. We expect that this process will take about a year and a half.

Summary of Recommendations

- We recommend that the regulations for lay nets should cover both moemoe and pa`ipa`i nets.

- We recommend that the current 2-3/4 inches minimum mesh size requirement for lay nets be continued for commercial lay nets but that a new 3 inches minimum mesh size should be established for non-commercial lay nets.

- We recommend that there should be established a twelve-hour time limit for non-commercial users and a four-hour limit for commercial users.

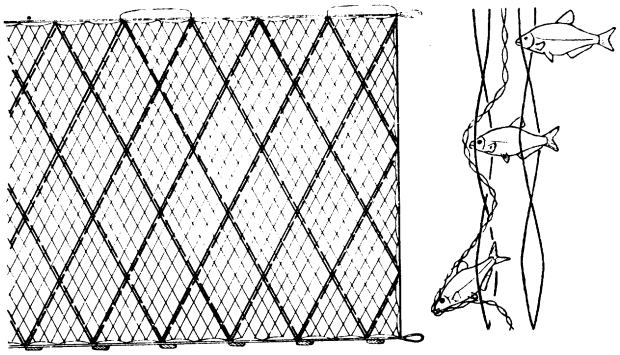
- We recommend that the current requirement for the two-hour inspection of lay nets be continued.

- We recommend that each person may only set one lay net once every 24-hours.

- We recommend that the use of trammel lay nets be allowed for commercial users only but that a minimum mesh size and a limit of two panels should be

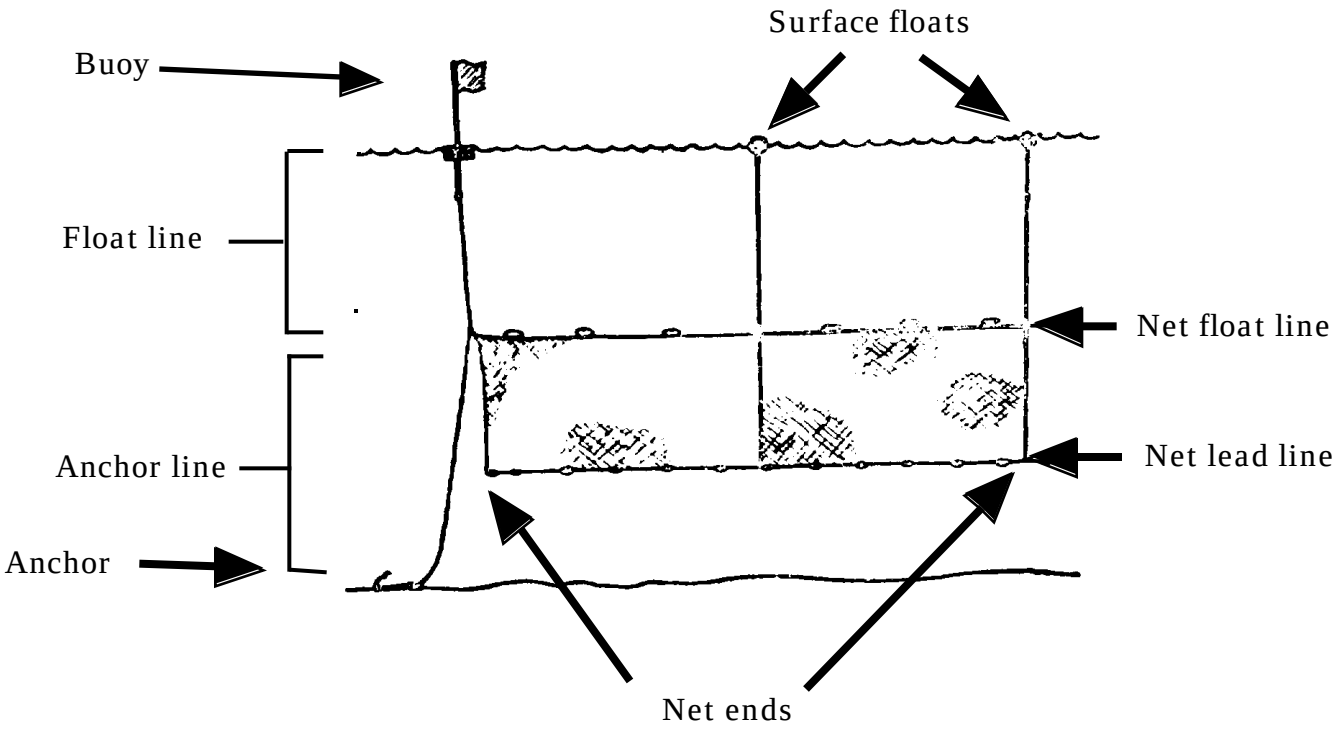
established.

- We recommend that the use of lay nets at night be allowed but that commercial lay nets users must attend their nets.
- We recommend that the breaking of corals should continue to be prohibited.
- We recommend that non-commercial lay nets should be prohibited in depths greater than 25'; commercial lay nets should be prohibited in depths greater than 80'.
- We recommend that all lay nets should be registered with the Department.
- We recommend that all lay nets, while in the water, should be tagged.
- We recommend that the following limits be established for lay nets: non-commercial users - maximum height 6'; maximum length limit 500'; commercial users - maximum height 12'; maximum length limit 1,200'
- We recommend that a 500' buffer between nets should be established.
- We recommend that all lay nets, while in the water, should have marker buoys.

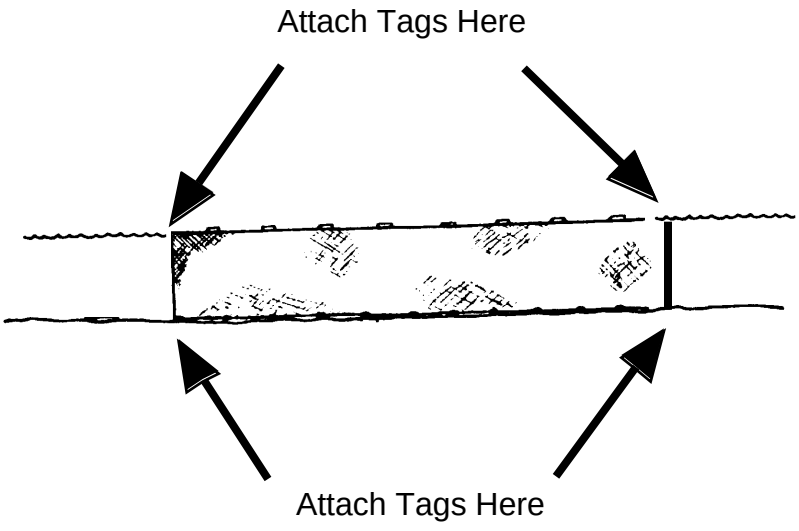


Trammel net

Parts of a Gill Net
(not all nets will have all these parts)



Tag Placement Sites



Attach one tag at each corner of the net